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A NEW PLEURODONTE FROM THE MIOCENE, BOWDEN, JAMAICA

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On February 1st, 1947, Mr. C. Bernard Lewis, Curator of the Science Museum of the Institute of Jamaica, while collecting from the Miocene fossiliferous beds at Bowden, discovered an adult *Pleurodonte* in an excellent state of preservation. The unconsolidated "matrix" came away without difficulty, yielding the only perfect, adult specimen of this genus yet recovered from this well known and much worked deposit. It is quite unlike the single fragment of a lip described by Simpson in 1895,[1] and named by him *P. bowdeniana*. Through the kindness of Mr. Lewis I am able to give the following brief account of this new, and exceptionally interesting, species.

PLEURODONTE (DENTELLARIA) BERNARDI, new species. Pl. 2, fig. 10.

Shell imperforate, solid, opaque, depressed, conoid, carinate. The height below the carina is $\frac{6}{10}$ of that above it. No sculpture is now visible on the first 2½ whorls. The last 3 whorls bear irregular, markedly retrocurrent, growth lines ("incrementals"), which, as soon as they become clearly visible, can be seen to be broken up into elongated "granules." Cf. *P. carmelita* (Fér.); also the first post-embryonic whorl of *P. atavus* (Shutt.). Each granule is from 2 to 8 times as long as it is broad; and by the end of the penultimate whorl each growth line is broken into from 12 to 14 such granules between the upper and lower suture; the granules tending to become shorter in the vicinity of the lower suture. The spire is very low-conoid; the apex very obtuse; the suture, where unabraded, linear. Whorls 5½, flat. The last whorl, at its origin, is very slightly convex both above and below a well marked but only medium-sharp carina; gradu-

[1] Proc. U. S. Nat. Mus. (1895), 17, p. 450.

ally becoming more convex, and the carina more obtuse and ill defined throughout its length. It is definitely less acute than in *P. schroeteriana* (Fér.) and very similar to that of the more acute forms of *P. tridentina* (Fér.). The last whorl itself is *not* deflected anteriorly; though the upper lip is, at its junction with the elevated margin of the parietal callus. (See *infra.*)

The aperture is subhorizontal and transversely subtriangular (cf. *P. acuta* (Lmk.)). Measured in the plane of the aperture, its maximum height is 11 mm., its maximum width 15 mm. The peristome is expanded laterally and below; the basal lip being reflected and thickened and adnate over the umbilical area. The upper lip, however, is neither expanded nor reflected (cf. *P. acuta* (Lmk.)). Instead, it is deflected 1½ mm. at its insertion. The raised margin of an exceptionally heavy parietal callus becomes progressively more elevated as it approaches the upper termination of the peristome. At the junction it protrudes 1½ mm. from the parietal wall, meeting the deflected upper lip at an angle of about 110°. The margin of the upper lip has suffered some abrasion, but it seems highly improbable that it ever differed much from its present form. The peristome, therefore, appears at first glance to be free and continuous but is in fact broken for a short distance in the columella region (cf. extreme forms of *P. sinuosa* (Fér.)).

The basal lip bears four lamellar teeth, which are noticeably less deep-set than those of fully mature, living species of the *P. sinuata* group. Tooth 1 (the innermost) is extremely small and weakly developed; and is appreciably nearer to tooth 2 than to the columella (cf. those specimens of *P. tridentina* (Fér.) which have a minute 4th tooth). Interspace II–III is about twice as wide as interspace I–II. Teeth 3 and 4 are joined together for over ⅔ of their height and 3 is slightly taller and considerably longer, from back to front, than 4 (cf. *P. okeniana* (Pfr.)). Tooth 2 is more than ⅔ the height of 3, and all the teeth are heavier and taller than in *P. tridentina.*

Concealed beneath the reflected basal lip are two very short, deep pits; the inner corresponding to tooth 2; the outer to teeth 3 and 4. The inner pit is barely visible. The outer pit is much broader than the inner and appears to open into a narrow, oblique cavity which is in fact the hollow interior of tooth 3 (cf. *P. bowdeniana* Simpson). The opening is not however, I feel certain, a natural one; but has resulted from the accidental piercing of a thin calcareous wall which originally separated the external pit from the cavity. There is *no* supra-peripheral furrow.

Diameter max.: 33½ mm.; Diameter min.: 28 mm.; Height: 16 mm.

Type: 1947/1 Inst. Jam. Coll. Locality: Bowden, Jamaica, B. W. I. Horizon: 8 ft. up in basal Bowden bed.

Pleurodonte sloaneana (Shuttleworth) is related, but it is less keeled, the upper arc of the lip is more reflected, and the aperture is less triangular.

Of living forms a 4-toothed *P. tridentina* comes, perhaps, nearest to the present species; but the fossil is sharply distinguished by its sculpture; by the relative size of teeth 3 and 4; and by its semi-continuous peristome, hollow third tooth, and unreflected upper lip. Of these characters the first and the last two are of special interest. The last two are links with the Miocene representative of the *P. acuta* group, *P. bowdeniana* Simpson; and *P. bernardi* is therefore, to that extent, "transitional" between that group and the now markedly divergent and diversified group of *P. sinuata* to which the new species is allied by all its other characters. Its sculpture, on the other hand, presumably reveals the mode of origin of the densely but finely granulated surface that is today characteristic of the more evolved forms in *both* groups.

But despite these interesting "transitional" features, the new species belongs to the group of *P. sinuata* just as clearly as *P. bowdeniana* belongs to that of *P. acuta*. We can assign our two Miocene species to their respective groups without hesitation. This, in its way, is a fact of no less significance than the possession of "transitional" characters. For the groups in question are taxonomic units of an extremely low order: perhaps of about sub-sectional rank. Thus the newly discovered species proves to what lengths differentiation had already progressed some twenty million years ago. In so doing it gives us a hint of how far back in time we presumably must go before we could hope to find the prototype of the entire genus. It certainly suggests that the last exchange of *Pleurodonte* between Jamaica and any other area occurred prior to (and probably long prior to) Miocene times.